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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,544	10/29/2003	Steven L. Worm	5697-39DV	5474
20792	7590	03/11/2005	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC			PERRIN, JOSEPH L	
PO BOX 37428			ART UNIT	PAPER NUMBER
RALEIGH, NC 27627			1746	

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,544

Applicant(s)

WORM ET AL.

Examiner

Joseph L. Perrin, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 24-28 is/are rejected.
- 7) ☒ Claim(s) 8-23 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20040223; 20031029.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 28 recites the limitation "the hard substrate" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7 & 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,904,737 to PRESTON *et al.* (hereinafter "PRESTON"). Re claims 1, 3-7, 24 & 26, Preston discloses a garment dry cleaning method including the steps of transferring a first liquid carbon dioxide fluid from a first liquid chamber of a work tank (tank 18) to a wash tank (cleaning chamber 32) to contact a dry cleanable article (col. 5, lines 18-23), returning the first fluid from the wash tank (32) to tank (18) (col. 5, lines 25-

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47), transferring a second liquid carbon dioxide fluid from a second liquid chamber (still 70) of the work tank to the wash tank (32) to contact the dry-cleanable article and returning the second fluid from the wash tank (32) to the divided work tank (col. 5, line 61 – col. 6, line 38, which discloses a recirculation loop from chamber (70) to tank (12) to either tank (18/20) to wash tank (32)). Re claims 2 & 25, PRESTON further discloses a common head space (see line 28 which connects tanks 18/20 and 12, which is fluidly connected to 70). Recitation of PRESTON reads on applicant's claimed invention.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over PRESTON in view of U.S. Patent No. 5,789,505 to WILKINSON *et al.* (hereinafter "WILKINSON"). Recitation of PRESTON is repeated here from above. PRESTON discloses a liquid CO₂ dry-cleaning system for cleaning garments but does not disclose cleaning microelectronic devices (semiconductor wafer). WILKINSON teaches that it is known in the dry-cleaning art to use liquid/supercritical CO₂ for cleaning various substrates including "electronic cleaning operations such as silicon wafer cleaning" and "dry cleaning of various fabrics" (see abstract and col. 5, lines 44-50). Therefore, since liquid/supercritical CO₂ cleaning of such articles are essentially art-recognized equivalents, one of ordinary skill in the art at the time the invention was made would have found it obvious to substitute cleaning garments for cleaning semiconductor wafers in view of WILKINSON.

Allowable Subject Matter

10. Claims 8-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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11. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose utilizing a third liquid chamber in a divided working tank of a carbon dioxide based dry-cleaning system.

Conclusion


12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent Nos. 6,851,148 & 6,442,980 & 6,216,302, each to PRESTON *et al.*, which are substantially cumulative to PRESTON cited above; U.S. Patent No. 6,776,801 to BERGLUND, which discloses a recirculating liquid CO₂ dry-cleaning system for garments; U.S. Patent Nos. 6,260,390 & 6,212,916, each to CARR, which disclose recirculating liquid CO₂ dry-cleaning system for articles.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph L. Perrin, Ph.D. whose telephone number is (571)272-1305. The examiner can normally be reached on M-F 7:00-4:30, except alternate Fridays.

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael E. Barr can be reached on (571)272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph L. Perrin, Ph.D.
Examiner
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jlj